Alaskan Way Viaduct and Seawall Project

Retrofitting Options Maintain Safety

Today's Viaduct and Seawall: Stable, But Not Permanent

Constructed in the 1950s by the City of Seattle (City) and the Washington State Department of Transportation (WSDOT), the Alaskan Way Viaduct does not meet today's standards for safety or earthquakes. It is also carrying twice the number of cars that it was originally designed to carry. The Nisqually Earthquake in February 2001 resulted in significant damage at several 'bents' (one of the many rows of columns that support the viaduct) where cracking in joints and floor beams occurred. WSDOT has repaired the damaged locations, but they are not permanent repairs. Some of the damage has occurred in areas that are impossible to repair without a long-term closure of the facility, and a significant replacement of that portion of the viaduct. Even with these repairs, the damage has required that bus and truck traffic be restricted from some lanes.

In addition to earthquake-related damage, the viaduct has also sustained normal wear and tear to a point where it must be replaced or retrofitted. For example, the driving surface of the facility has been worn down and patched several times; the next repair will have to be a far more substantial effort. Investigations following the Nisqually Earthquake have shown that there is not enough reinforcing steel rebar in the needed locations and is very brittle, reducing the ability of the viaduct to absorb the shaking from an earthquake.

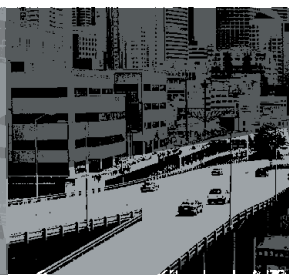
The seawall is another aging structure, initially constructed between 1910 and 1934, that has also suffered significant damage over the years. Similar to the viaduct, the seawall was not built to today's earthquake standards. Marine borers, water bugs that eat wood, have damaged portions of the timber-relieving platform holding up Alaskan Way. This means the seawall is especially susceptible to further damage by an earthquake. If the seawall collapses during an earthquake, the soils behind the seawall will become loose, which will result in damage or perhaps total collapse of a portion of the viaduct itself.

Washington State Department of Transportation

City of Seattle

For general project information:

- Visit the project website at ***www.wsdot.wa.gov/projects/viaduct***
- Call the project hotline at **206-269-4421**



Retrofit: Making the Viaduct and Seawall Safe for Another Seventy-Five Years

WSDOT and the City are investigating several plans for replacing or retrofitting the viaduct and seawall. The goal of retrofitting is that the viaduct and seawall are able to remain in service for another seventy-five years and will meet today's earthquake standards.

Finding a viable retrofit solution for the viaduct is difficult. As investigations continue, more and more of the structure is being found to be in poor condition in the event of an earthquake. At this point in time, it is likely that retrofitting will be as disruptive as a total replacement, is a major project in itself, and likely to be costly. While retrofitting the viaduct will maintain the view for drivers from the upper deck, it will remain a barrier between downtown and the waterfront. Traffic noise from the viaduct may be partially mitigated but will still impact the surrounding area significantly.

WSDOT and the City are considering several options for replacing the existing seawall. If one of the cut and cover tunnel plans is not selected as the preferred plan, WSDOT and the City are currently planning to construct a new structural wall to support the existing seawall face and sidewalk and prevent intrusion by marine borers. Current findings also show that it may be necessary to reconstruct the relieving platform with concrete rather than the existing timbers. In order to construct the concrete supplement to the relieving platform, most of the Alaskan Way surface street will need to be removed and replaced.